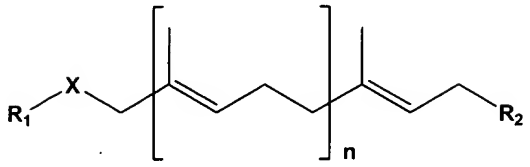
**What is claimed is:**

1. A compound of formula I:




I

wherein:

X is independently O or S;

$R_1$ is a detectable group;

$R_2$ is independently

OH,

$(C_1\text{-}C_{10})$alkanoyloxy,

-O-P(=O)$(-OR_a)_2$,

-O-P(=O)$(-OR_a)$-O-P(=O)$(-OR_a)_2$,

-$CH_2$-O-P(=O)$(-OR_a)_2$,

-$CH_2$-O-P(=O)$(-OR_a)$-O-P(=O)$(-OR_a)_2$,

-$CH_2$-P(=O)$(-OR_a)_2$,

-CH$\{$-P(=O)$(-OR_a)_2\}_2$,

-$CH_2$-P(=O)$(-OR_a)$-O-P(=O)$(-OR_a)_2$,

-CH=CH$\{$-P(=O)$(-OR_a)_2\}$, or

-CH=C$\{$-P(=O)$(-OR_a)_2\}_2$ ;

each $R_a$ is independently hydrogen, $(C_1\text{-}C_{10})$alkyl, $(C_1\text{-}C_{10})$alkanoyl, $(C_1\text{-}C_{10})$alkanoyloxy, $(C_1\text{-}C_{10})$alkoxycarbonyl, or -$CH_2$-O-$(C_1\text{-}C_{10})$alkanoyl;

n is independently 1, 2, or 3;

or a pharmaceutically acceptable salt thereof.

2. The compound of claim 1 wherein the detectable group is aryl or Het, optionally substituted with one or more substituents independently selected from -$COOR_b$, -$S(O)_nNR_bR_b$, halo, cyano, nitro, aryl, heterocycle, ($C_1$-$C_{10}$)alkoxy, ($C_2$-$C_6$)alkenyl, -$C(=O)NR_bR_b$, -$OC(=O)NR_bR_b$, -$NR_bR_b$, or -$S(O)_nR_b$, where each $R_b$ is independently hydrogen, ($C_1$-$C_{10}$)alkyl, or ($C_1$-$C_{10}$)alkanoyl.

3. The compound of claim 2 wherein aryl or Het is phenyl, indenyl, naphthyl, anthracenyl, or anthranil, which aryl or Het is optionally substituted with one or more substituents independently selected from -$COOR_b$, -$S(O)_nNR_bR_b$, halo, cyano, nitro, aryl, heterocycle, ($C_2$-$C_6$)alkenyl, -$C(=O)NR_bR_b$, -$OC(=O)NR_bR_b$, -$NR_bR_b$, or -$S(O)_nR_b$, where each $R_b$ is independently hydrogen, ($C_1$-$C_{10}$)alkyl, or ($C_1$-$C_{10}$)alkanoyl.

4. The compound of claim 1 wherein $R_1$ is substituted phenyl.

5. The compound of claim 1 wherein $R_1$ is phenyl substituted with -$COOR_b$.

6. The compound of claim 1 wherein $R_1$ is 2-methoxycarboxy phenyl.

7. The compound of claim 1 wherein $R_1$ is substituted naphthyl.

8. The compound of claim 1 wherein $R_1$ is naphthyl substituted with a -$S(O)_nNR_bR_b$.

9. The compound of claim 1 wherein $R_1$ is naphthyl substituted at the 5 – position with a -$S(O)_nNR_bR_b$ substituent.

10. The compound of claim 1 wherein $R_1$ is 5-N,N'- dimethylaminosulfonyl naphthy-1-yl.

11. The compound of claim 1 wherein $R_2$ is OH.

12. The compound of claim 1 wherein $R_2$ is $(C_1\text{-}C_{10})$alkanoyloxy.

13. The compound of claim 1 wherein $R_2$ is -O-P(=O)(-$OR_a$)$_2$ .

14. The compound of claim 1 wherein $R_2$ is -O-P(=O)(-$OR_a$)-O-P(=O)(-$OR_a$)$_2$.

15. The compound of claim 1 wherein $R_2$ is -$CH_2$-O-P(=O)(-$OR_a$)$_2$.

16. The compound of claim 1 wherein $R_2$ is -$CH_2$-O-P(=O)(-$OR_a$)-O-P(=O)(-$OR_a$)$_2$.

17. The compound of claim 1 wherein $R_2$ is -$CH_2$-P(=O)(-$OR_a$)$_2$.

18. The compound of claim 1 wherein $R_2$ is -CH{-P(=O)(-$OR_a$)$_2$}$_2$.

19. The compound of claim 1 wherein $R_2$ is -$CH_2$-P(=O)(-$OR_a$)-O-P(=O)(-$OR_a$)$_2$.

20. The compound of claim 1 wherein $R_2$ is -CH=CH{-P(=O)(-$OR_a$)$_2$}.

21. The compound of claim 1 wherein $R_2$ is -CH=C{-P(=O)(-$OR_a$)$_2$}$_2$.

22. The compound of claim 1 wherein $R_a$ is hydrogen.

23. The compound of claim 1 wherein $R_a$ is $-C(=O)-CH_3$.

24. The compound of claim 1 wherein $R_a$ is $-CH_3$.

25. The compound of claim 1 wherein $R_a$ is $-CH_2-O-(C_1-C_6)$alkanoyl.

26. The compound of claim 2 wherein $R_b$ is hydrogen.

27. The compound of claim 2 wherein $R_b$ is $-CH_3$.

28. The compound of claim 1 wherein n is 1.

29. The compound of claim 1 wherein n is 2.

30. The compound of claim 1 wherein n is 3.

31. The compound of claim 1 wherein X is -O-.

32. The compound of claim 1 wherein X is –S-.

33. A pharmaceutical composition comprising a compound as described in claim 1 and a pharmaceutically acceptable diluent or carrier.

34. A method of treating cancer, comprising administering to a mammal afflicted with cancer, an amount of a compound as described in claim 1 effective to treat said cancer.

35. A method of inhibiting a prenylation transferase enzyme or synthase enzyme

comprising contacting the enzyme with an effective amount of a compound as described in claim 1.

36. A method of accessing the metabolic status of an enzyme comprising:

contacting the enzyme with an effective amount of a mixture of a farnesol analog compound and a geraniol or geranylgeraniol analog compound as described in claim 1; and

measuring the relative ratio of farnesylation to geranylgeranylation of the farnesol and the geraniol or geranylgeraniol analog compounds accomplished by the enzyme.

37. A compound as described in claim 1 for use in medical therapy or diagnosis.

38. The compound of claim 37 wherein the therapy or diagnosis is treating cancer.

39. The use of a compound as described in claim 1 for the manufacture of a medicament useful for the treatment of cancer.

40. The use of a compound as described in claim 1 for the manufacture of a medicament useful for inhibiting prenylation transferase enzymes in a mammal.

41. A protein conjugate comprising a protein linked to a fluorescent fragment of a compound of claim 1.